

WHAT IS CLAIMED IS

1. A film structure comprising, as at least one surface layer, a porous membrane comprising an extruded, biaxially stretched, film of high density polyethylene (HDPE) and particles of an incompatible material,
5 wherein said membrane layer has a meshed network of HDPE fibers and striations of layers coplanar with the plane of the membrane layer, wherein said membrane layer is porous in a direction perpendicular to the plane of the film and wherein said membrane layer has a void content of at least 20%.
- 10 2. A film structure according to claim 1, wherein said incompatible material is calcium carbonate.
3. A film structure according to claim 1, wherein said surface membrane layer is treated with plasma at a temperature below the melting point of said HDPE.
- 15 4. A film structure according to claim 1, which is completely porous from one surface of the film to the other surface to the film.
5. A film structure according to claim 4 adapted for use as a filter or a battery separator.
6. A film structure according to claim 1, wherein said membrane
20 layer has a void content of 20-85%.
7. A film structure according to claim 6, wherein said membrane layer has a void content of at least 50%.
8. A film structure according to claim 1, wherein said HDPE has the following properties: (1) a molecular weight of less than 250,000; (2) an
25 intrinsic viscosity of less than 5 dl/g; and (3) an ASTM D 1238-86 condition E melt index of from 0.4 to about 4 grams/10 minutes.
9. A film structure according to claim 4 comprising a monolayer of film.
- 10 30 10. A film structure according to claim comprising at least one noncavitated backing layer.